

We claim,

1. A medical system, comprising:

- 5 a) an ambulatory medical device (MD) comprising MD electronic control circuitry that further comprises at least one MD telemetry system and at least one MD processor that controls, at least in part, operation of the MD telemetry system and operation of the medical device, wherein the medical device is configured to provide a treatment to a body of a patient or to monitor a selected state of the body; and
- 10 b) a communication device (CD) comprising CD electronic control circuitry that further comprises at least one CD telemetry system and at least one CD processor that controls, at least in part, operation of the CD telemetry system and operation of the communication device, wherein the CD telemetry system sends messages to or receives messages from the MD telemetry system,
- 15 wherein the communication device weighs no more than about 10 oz and comprises a CD housing having a volumetric size smaller than 20 cubic inches.

2. The system of claim 1 wherein a first portion of the MD telemetry system is incorporated into the MD processor and a second portion of the MD

20 telemetry system is external to the MD processor, or wherein a first portion of the CD telemetry system is incorporated into the CD processor and a second portion of the CD telemetry system is external to the CD processor.

3. The system of claim 2 wherein (1) the MD electronic control circuitry comprises at least one external MD functional module, other than the second

25 portion of the MD telemetry system, that is external to the MD processor, (2) the CD electronic control circuitry comprises at least one external CD functional module, other than the second portion of the CD telemetry system, that is external to the CD processor, (3) the MD processor comprises an internal MD CPU and at least one other internal MD functional module, or (4) the CD processor comprises

30 an internal CD CPU and at least one other internal CD functional module.

4. The system of claim 1 wherein communication device further comprises:
 - a) a user readable CD display supported by the CD housing; and
 - b) a touch sensitive CD input device supported by the CD housing.
- 5 5. The system of claim 4 wherein the communication device has dimensions no greater than 1.2 inch by 4 inch by 5 inch.
6. The system of claim 5 wherein the communication device has dimensions no greater than 0.8 inch by 3 inch by 4 inch.
7. The system of claim 1 wherein the communication device weighs no
10 more than 6 oz.
8. The system of claim 1 wherein the communication device comprises a CD auditory alarm or a CD vibration alarm that is controlled by the CD processor.
9. The system of claim 1 further comprising a second device and
15 wherein the communication device and the second device include infrared communication systems that are capable of passing communication signals therebetween.
10. The system of claim 4 wherein the medical device is programmable and wherein the communication device holds an image of at least one program
20 that is executable by the medical device and that can be downloaded to the medical device via the CD and MD telemetry systems.
11. The system of claim 4 wherein the medical device comprises an MD memory that holds MD operation data, and wherein the communication device is capable of requesting and receiving selected portions of the MD operation data
25 via telemetry.
12. The system of claim 10 wherein the data is clinical diagnostic data.
13. The system of claim 10 wherein the data is system diagnostic data.

14. The system of claim 4 wherein the CD display comprises a graphics LCD.

15. The system of claim 4 wherein the CD display comprises a multiple icon display.

5 16. The system of claim 4 wherein the communication device operates from a single 1.5 volt battery.

17. The system of claim 1 wherein the medical device comprises at least one of (1) an implantable infusion pump for selectively dispensing a selected drug, (2) an implantable infusion pump for selectively dispensing insulin, (3) an
10 implantable sensor for sensing a selected state of the body, (4) an implantable sensor for sensing glucose level, or (5) an implantable electrode for selectively stimulating a portion of the body of the patient.

18. A medical system, comprising:

a) an ambulatory medical device (MD) comprising MD electronic
15 control circuitry that further comprises at least one MD telemetry system and at least one MD processor that controls, at least in part, operation of the MD telemetry system and operation of the medical device, wherein the medical device is configured to provide a treatment to a body of a patient or to monitor a selected state of the body; and

20 b) a communication device (CD) comprising CD electronic control circuitry that further comprises at least one CD telemetry system and at least one CD processor that controls, at least in part, operation of the CD telemetry system and operation of the communication device, wherein the CD telemetry system sends messages to or receives messages from the MD telemetry system,

25 wherein the communication device is configured to receive status information on an MD battery via telemetry from the medical device.

19. The system of claim 18 wherein a first portion of the MD telemetry system is incorporated into the MD processor and a second portion of the MD telemetry system is external to the MD processor, or wherein a first portion of the

CD telemetry system is incorporated into the CD processor and a second portion of the CD telemetry system is external to the CD processor.

20. The system of claim 19 wherein (1) the MD electronic control circuitry comprises at least one external MD functional module, other than the
5 second portion of the MD telemetry system, that is external to the MD processor, (2) the CD electronic control circuitry comprises at least one external CD functional module, other than the second portion of the CD telemetry system, that is external to the CD processor, (3) the MD processor comprises an internal MD CPU and at least one other internal MD functional module, or (4) the CD
10 processor comprises an internal CD CPU and at least one other internal CD functional module.

21. The system of claim 18 wherein the medical device provides a periodic indication of the MD battery voltage when the MD battery is experiencing a current load that is closer to the minimum load during normal operation of the
15 medical device than a maximum load during normal operation.

22. The system of claim 18 wherein the medical device provides a periodic indication of the MD battery voltage when the MD battery is experiencing a current load which is closer to the maximum load during normal operation than a minimum load during normal operation.

20 23. The system of claim 18 wherein the medical device provides an indication of MD battery status at least once a week.

24. The system of claim 23 wherein the medical device provides an indication of MD battery status at least once every two days.

25 25. The system of claim 23 wherein MD battery status is provided using both a lower current load and a higher current load at least once a week.

26. The system of claim 25 wherein MD battery status is provided using both a lower current load and a higher current load at least once a every two days.

27. The system of claim 18 wherein the MD battery is rechargeable.

28. The system of claim 18 wherein the MD battery is not rechargeable.

29. The system of claim 18 wherein the communication device provides an auditory, visual, or tactile warning when the MD battery is estimated to be capable of powering the medical device for less than a predetermined additional
5 amount of time.

30. The system of claim 29 wherein the predetermined time is less than about six months.

31. The system of claim 30 wherein the predetermined time is less than about three months.

10 32. The system of claim 31 wherein the predetermined time is less than about one month.

33. The system of claim 18 wherein the medical device comprises at least one of (1) an implantable infusion pump for selectively dispensing a selected drug, (2) an implantable infusion pump for selectively dispensing insulin, (3) an
15 implantable sensor for sensing a selected state of the body, (4) an implantable sensor for sensing glucose level, or (5) an implantable electrode for selectively stimulating a portion of the body of the patient.

34. A medical system, comprising:
a) an ambulatory medical device (MD) comprising MD electronic
20 control circuitry that further comprises at least one MD telemetry system and at least one MD processor that controls, at least in part, operation of the MD telemetry system and operation of the medical device, wherein the medical device is configured to provide a treatment to a body of a patient or to monitor a selected state of the body; and

25 b) a communication device (CD) comprising CD electronic control circuitry that further comprises at least one CD telemetry system and at least one CD processor that controls, at least in part, operation of the CD telemetry system and operation of the communication device, wherein the CD telemetry system sends messages to or receives messages from the MD telemetry system,

wherein the medical device is configured to provide a drug to the body of a patient in amounts that are integer multiples of a quantized amount,
wherein the communication device is programmed to allow entry of delivery quantities that are not integral multiples of the quantized amount.

5 35. The system of claim 34 wherein a first portion of the MD telemetry system is incorporated into the MD processor and a second portion of the MD telemetry system is external to the MD processor, or wherein a first portion of the CD telemetry system is incorporated into the CD processor and a second portion of the CD telemetry system is external to the CD processor.

10 36. The system of claim 35 wherein (1) the MD electronic control circuitry comprises at least one external MD functional module, other than the second portion of the MD telemetry system, that is external to the MD processor, (2) the CD electronic control circuitry comprises at least one external CD functional module, other than the second portion of the CD telemetry system, that
15 is external to the CD processor, (3) the MD processor comprises an internal MD CPU and at least one other internal MD functional module, or (4) the CD processor comprises an internal CD CPU and at least one other internal CD functional module.

20 37. The system of claim 34 wherein the infusion device is a pulsatile pumping device.

 38. The system of claim 37 wherein the infusion device is an electromagnetically activated piston pump

25 39. The system of claim 34 wherein the medical device comprises at least one of (1) an implantable infusion pump for selectively dispensing a selected drug, (2) an implantable infusion pump for selectively dispensing insulin, (3) an implantable sensor for sensing a selected state of the body, (4) an implantable sensor for sensing glucose level, or (5) an implantable electrode for selectively stimulating a portion of the body of the patient.